

COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Rotor Cooling Apparatus

the specification of which (check only one item below):

- ☒ is attached hereto.
- ☐ was filed as United States application
Number _____ on _____
and was amended _____ on _____ (if applicable).
- ☐ was filed as PCT international application
Number _____ on _____
and was amended _____ on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 (a)-(e) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. §119:				
COUNTRY (if PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 U.S.C. §119	
			Yes	No
			Yes	No
			Yes	No
			Yes	No
			Yes	No

Combined Declaration for Patent Application and Power of Attorney

Attorney's Docket No. 031220-202

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I hereby appoint the following attorneys and agent(s) to prosecute said application and to transact all business in the Patent and Trademark Office connected therewith and to file, prosecute and to transact all business in connection with international applications directed to said invention:

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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within the machine or fixed to the rotor can also be provided, to force air through an interior of the hollow rotor. In one embodiment, blades are attached to the shaft within the rotor. In another embodiment, the ends of the rotor are shaped to form fan blades that draw air through the interior of the rotor. Air that flows into one end of the rotor and exits the other end of the rotor in a flow along the rotational axis of the rotor, can be recirculated by flowing back through passageways formed a) between the stator and the machine casing, b) through the stator, c) through the machine casing, and/or d) back through an air gap between the stator and the rotor. In an exemplary embodiment of the invention, the machine casing is sealed so that the cooling air flowing through the rotor travels in a closed path or loop.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Other objects and advantages of the present invention will become apparent to those skilled in the art from the following detailed description of preferred embodiments, when read in conjunction with the accompanying drawings wherein like elements have been designated with like reference numerals and wherein:

[0009] Figure 1 shows an electric machine in accordance with an exemplary embodiment of the invention.

[0010] Figure 2 shows an end view of the electric machine rotor shown in Figure 1.

[0011] Figure 3 shows an electric machine in accordance with another exemplary embodiment of the invention.

[0012] Figure 4 shows another exemplary embodiment of the present invention.

[0013] Figure 5 shows an end view of the rotor hub shown in Figure 4.

[0014] Figure 6 shows a sectional view of the rotor hub shown in Figure 5 along lines 6-6.

[0015] Figure 7 shows a sectional view of the rotor hub shown in Figure 5, along lines 7-7.

[0016] Figure 8 shows a side cross-sectional view of an exemplary electric machine in accordance with an embodiment of the invention, with air flow passages in the machine casing or housing.

[0017] Figure 9 shows an end cross-sectional view of the electric machine of Figure 8, along lines 8-8.